

REMARKS

New claims 19-21 are presented for examination.

The examiner has rejected claims 1-8, 10, and 11 under 35 U.S.C. 103 over Traill et al. in view of Savage. It is respectfully urged that this ground of rejection is not well taken.

The present invention relates to a process for forming low-viscosity, hot water-coagulable cellulose ethers. The application claims the depolymerization of such cellulose ethers by hydrolytic degradation. In particular the invention claims: A process for the depolymerization of hot water-coagulable cellulose ethers by hydrolytic degradation by means of acids, wherein the degradation is carried out at a temperature above the cloud point of the cellulose ether as concentrated aqueous slurry, and in addition at least one oxidizing agent is added to the concentrated aqueous slurry in an amount of between 0.05 and 5% by weight, before, during and/or after the depolymerization in acidic or neutral medium.

The examiner takes the position that Traill et al. teaches each feature of the present claims except for the addition of an oxidizing agent as described in the present claim 1. In an effort to fill this void, the examiner cites Savage. However, Applicants respectfully submit that the examiner is merely selecting and combining features from references where there is no suggestion in those references to do so. Further, it is urged that even upon such a combination, the present claims would not be obviated.

Traill et al. certainly relates to a method for making cellulose ethers. In particular, Traill teaches a process of lowering the viscosity of cellulose ethers by treating a high viscosity cellulose ether with a dilute acid at an elevated temperature (115 - 160°C) and elevated pressure for approximately 20 minutes to 1 hour (see Traill, page 1, lines 23-39) until the viscosity of the ether has been reduced as far as desired. The acid concentration is in the

range of 0.5 to 5.0% by weight (see Traill, page 1, line 93). Hydrochloric acid may be employed as the acid (see Example 1), and the weight of the dilute acid is shown as being several times higher than the weight of the cellulose ether. Importantly, as the examiner admits, Traill, et al does not disclose nor suggest the inclusion of an oxidizing agent during his process. Also, Table 1 of the present invention shows that the amount of hydrochloric acid in the present invention represents a small weight percentage, ranging from about 4 to about 16% by weight, of the dry cellulose ether. Thus, in this further respect, Applicants respectfully urge that the disclosure of Traill actually *teaches away* from the present invention. Thus, it is urged that one skilled in the art would not have been inspired to look to the teachings of Traill et al. in an effort to devise the presently claimed invention.

As stated above, the examiner attempts to fill the void of Traill by citing Savage. Indeed Savage relates to a process for reducing the viscosity of a cellulose ether, using hydrogen peroxide. However, Applicants again urge that the teachings of Savage differ from those of the present invention such that one skilled in the art would not have looked to Savage in an effort to formulate the present invention.

First, Savage does not disclose or suggest use of an acid in an aqueous slurry. Specifically, describes a process using *alkaline* reaction conditions (see Col. 3, lines 20-21), while the present invention uses *acidic* reaction conditions. Furthermore, the present invention teaches a decrease in viscosity as a result of non-oxidative chain shortening, which is a *hydrolic degradation* of the polymer chain in the presence of acid as a catalyst. In contrast, the Savage reference relates to an *oxidative depolymerization* resulting in a loss of viscosity (see Savage, Col. 2, lines 48-51). In Savage's process, a small amount of hydrogen peroxide is sprayed onto a cellulose ether which is an essentially dry and free-flowing particulate form (see col.2, lines 29-32) rather than an aqueous slurry. Savage teaches that the moisture content of the cellulose should be kept below 5% by weight (col. 2, line 37). The amount of hydrogen peroxide is preferably in the range of from 0.1 to 5.0% by weight, based on the weight of the dry cellulose ether (col. 3, lines 39-42). Even after addition of the aqueous hydrogen peroxide, the cellulose

ether is in a free-flowing, essentially dry particulate form. The pH of the reaction mixture is said to be a non-critical factor. Nevertheless, mild alkaline conditions (pH 8 to 11) may be more effective (col. 3, lines 10-25). Acidic conditions are not in any way contemplated by Savage. Savage thus clearly teaches away from adding hydrogen peroxide to an aqueous, strongly acidic slurry of a cellulose ether. There would be no suggestion to those skilled in the art to add Savage's oxidant in Traill, et al's composition. It is respectfully submitted that the examiner is impermissibly reconstructing the art in light of applicant's disclosure.

For the above reasons, it is urged that a person of ordinary skill in the art would not have been inspired to look to the disclosure of Savage or Traill, either alone or in combination, in an effort to formulate the presently claimed invention. It is urged that there is nothing in the cited art which would teach or suggest how or why one would combine the teachings of these references in an effort to devise the presently claimed invention. Applicants therefore respectfully request that the 35 U.S.C. 103 rejection be withdrawn

The examiner has rejected claims 12-18 under 35 U.S.C. 103 over Kobayashi et al. in view of Savage. Applicants urge that this ground of rejection is not well taken.

Claim 12 of the present invention claims: a methylhydroxypropylcellulose with a Hoppler viscosity measured as 2.0% solution (absolutely dry) in water at 20°C of ≤ 50 mPas, obtainable by a process as claimed in claim 1.

Kobayashi relates to pharmaceutical films which include water-soluble cellulose ethers. Kobayashi describes a method whose end product inherently results in a salt content of 2.6%, which is much higher than the 0.4% which inherently results by following the process of claim 1 of the present invention. (See also claim 15). The higher salt content is the result of neutralization of HCl with sodium carbonate performed during Kobayashi's process. Thus, any end products having a lower salt content cannot result from any combination with Kobayashi. This would be undesirable in the formation of the present invention. Applicants therefore urge that one skilled in the art would not have

looked to the teachings of Kobayashi in an effort to devise the presently claimed invention.

The arguments against Savage are repeated from above and apply equally here. Specifically, Savage describes a process using *alkaline* reaction conditions, while the present invention uses *acidic* reaction conditions. Furthermore, the present invention teaches a decrease in viscosity as a result of non-oxidative chain shortening, which is a *hydrolic degradation* of the polymer chain in the presence of acid as a catalyst.

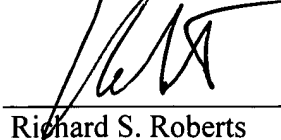
Applicants urge that there is no teaching or suggestion in the art which would lead one to combine the teachings of Kobayashi and Savage in an effort to devise the present invention. The invention cannot be deemed unpatentable merely because, in a hindsight attempt to reconstruct the invention, one can find elements of it in the art; it must be shown that the invention as a whole was obvious at the time the invention was made without knowledge of the claimed invention. 35 U.S.C. 103. When selective combination of prior art references is needed to make an invention seem obvious, there must be something in the art to suggest that particular combination other than hindsight gleaned from the invention itself, something to suggest the desirability of the combination. Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434, 1438 (CAFC 1988). Such a suggestion is absent in the cited references.

Furthermore, it is urged that even upon such a hypothetical combination of these references, the present claims would still fail to be obviated. Thus, it is respectfully submitted that the 35 U.S.C. 103 rejection should be withdrawn.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the

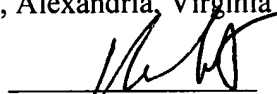
undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage pre-paid in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on September 15, 2004.


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